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Message from the Associate Director

A visitor once remarked that, from an outsider's viewpoint, the "best-kept secret" at the Laboratory was this little known directorate called CMS and the outstanding science conducted by CMS personnel. That brief comment left a strong impression on me, and it has been one of my top priorities since I became the associate director to fundamentally change that external perception.

During the past year, the increased recognition by external scientific and technical communities underscored our ambitious undertaking to raise visibility. Both on the national and international scenes, CMS personnel have earned honors by professional societies, presidential awards, and marks of distinction for our publications.

External Awards

An important pipeline to our future successes is our cadre of vibrant,

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Corner on Science

Water, Water Everywhere—or Not?

We live in the nation's most populous state and in the arid West. Our water supplies are often dependent on capricious weather and are increasingly stressed by the state's burgeoning population and economic development. To develop tools that will help water resource managers make the best decisions about California's water supply infrastructure, protection, and treatment, Livermore has undertaken an ambitious three-year Water Initiative. The Energy and Environment (E&E) Directorate leads the initiative, composed of Laboratory Directed Research and Development projects that exploit long-standing Laboratory strengths: providing better predictive climate models, improving the scientific understanding of water contamination, and developing more cost-effective technologies for purifying water.

CMS's **Brad Esser** is principal investigator for work on water contamination. His team is examining the natural processes that control the movement and degradation of nitrate in groundwater, which may come from fertilized farmland, dairies, feedlots, and septic tanks. The

team draws on Livermore expertise in isotope hydrology, groundwater modeling, and molecular biology to study microbial control of nitrate degradation at

the laboratory scale; at the farm scale, using a dairy farm in the Central Valley; and at the larger, water-basin scale, in Santa Clara County's Llagas Basin. CMS members of this team include **Gail Eaton, Max Hu, Bryant Hudson, Cheryl Moody-Bartel**, and **Jean Moran**. Other team members come from E&E and the Safety and Environmental Protection Directorate.

Many water supply wells that have been closed because of nitrate or other contamination could be reopened if the water is treated. Phil Duffy and Bill Bourcier of E&E are leading the modeling and purification effort to develop a cost-



Brad Esser

Continued on page 3 ►

Interview with...

Judy Kammeraad

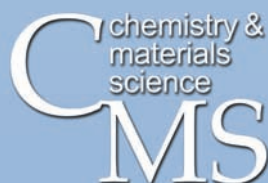
Judy Kammeraad, CMS's principal deputy associate director, is an excellent complement to AD Tomás Díaz de la Rubia. While Tomás's research specialty is materials science, Judy's is radiological and nuclear science. Together Tomás and Judy cover much—but admittedly not quite all—of CMS's scientific base.

Last spring, the Laboratory was pleased to welcome Judy back to Livermore after a busy year in Washington, D.C., where she helped the new Department of Homeland Security (DHS) get started, or "stand up," as they



say in the Capitol. With her extensive experience in nuclear and radiological detection, Judy served as portfolio manager for Radiological and Nuclear Countermeasures during the department's first year of operation. She worked within DHS's Science and Technology Directorate, the primary research, development, test, and evaluation arm of the department. The directorate provides federal, state, and local officials with improved technical capabilities to protect the homeland. Judy developed program plans and strategies for radiological and nuclear countermeasure projects, represented the DHS on several interagency committees and work-

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CHEMISTRY AND MATERIALS SCIENCE DIRECTORATE

*Providing scientific excellence and leadership that meet
and anticipate the needs of the Laboratory's programs*

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A PDF of this newsletter with clickable Web links can be downloaded from the CMS Web site: <http://www-cms.llnl.gov/news/newsletter.html>.

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Notable Publications

BY MICHAEL FLUSS

Keep Your Eye on the Target

The successful construction and commissioning of the National Ignition Facility (NIF) ranks as an important milestone for Lawrence Livermore and the nation. Within NIF, many small but very critical achievements will together ultimately lead to the success of research programs fielded on NIF. Work by CMS scientists **John Poco** and **Joe Satcher**, in concert with researchers from Defense and Nuclear Technologies, NIF, Engineering, and two outside organizations, is one such example. It involves developing the materials and configurations for extremely bright backlighters, which are an essential component for the diagnostics to be employed on NIF. In *Physical Review Letters* (92), the authors note that one hope for increasing the x-ray efficiency of solid targets is to heat,

volumetrically, the whole target, through a laser-bleaching wave. They report on a substantial improvement in the development of efficient kiloelectronvolt x-ray sources and present measurements of x-ray output from laser-heated titanium *K*-shell emitters in a low-density aerogel plasma. The experiments, performed at the University of Rochester's OMEGA laser, highlight the complex, synergistic, and essential relationships among such disciplines as materials science, laser technology, and plasma physics, a synergy that will be the key to future success in the many challenging experiments planned for NIF. ■

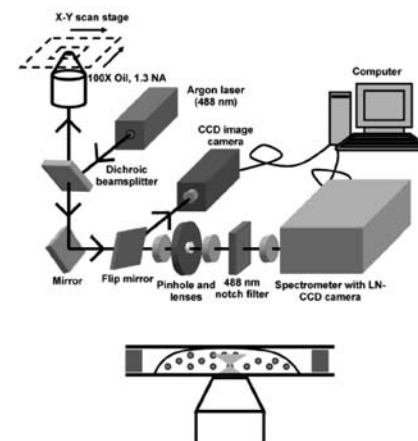
Publication URL:

Physical Review Letters 92 (16), Article 165005
<http://prl.aps.org/>

Something Bugging You?

Have you ever wanted to know exactly why you were sick with that "bug"? Answering the question often requires a trip to the doctor's office, a swab (choke-choke), and then a long wait while the swab's contents are cultured. No, they are not sending it to finishing school; they are growing generations of the bug's progeny to have enough organisms to identify it. By then, of course, you are well again.

That process may change, thanks to work by **Anthony Esposito**, **Chad Talley**, **Christopher Hollars**, **Mark Lane**, and **Thomas Huser** from CMS and the National Science Foundation's Center for Biophotonics Science and Technology at UC Davis. Our CMS researchers and Physics and Advanced Technologies, affiliated with the UC Davis Center, have developed a new advanced diagnostic in which an optical trap is joined with Raman microscopy to identify single spores. The result is a powerful tool for the rapid identification of micrometer-sized particles in an aqueous environment. Optical trapping immobilizes the particle while maintaining it in the center of the laser beam path and within the laser focus, thus maximiz-



Schematic of the experimental setup for the laser tweezers optical Raman spectrometer. A low-power argon laser beam is used to optically trap individual particles and provide excitation for Raman spectroscopy.

ing the collection of its Raman signals. It now takes only five seconds to acquire identifying spectra because the suspect bug is automatically immobilized with "laser tweezers" at the focus of the analytical laser. The April 2004 issue of *Biophotonics International* recognizes the team for their new tool. ■

Publication URL:

Analytical Chemistry 76 (3), 599–603
<http://pubs.acs.org/journals/ancham/index.html>
Biophotonics International, April 2004
<http://www.photonics.com/bio/XQ/ASP/QX/>

Saying Goodbye...

Farewell to Dave Eaglesham

Dave Eaglesham, Deputy Associate Director for Science & Technology, left the Laboratory on January 7 for a position at Applied Materials in Santa Clara. He has nothing but kind words for what he calls “the CMS family.”

“Everyone was so welcoming when I came to the Laboratory two years ago,” he says. “It really felt like joining a family. My time here has been a wonderful experience. I’ve gained a huge respect for the people and work of this Laboratory. In fact, I’ve been blown away by everyone’s ability.”

We wish Dave the best of luck! ■



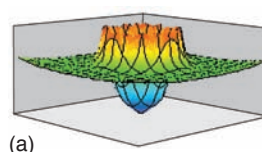
Corner on Science

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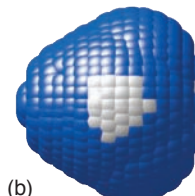
effective option for treating the water from wells that contain small amounts of contaminants but are otherwise adequate for domestic use. This team includes individuals from E&E, Engineering, and **Sonia Letant, Charlene Shaldach, and Bill Wilson** of CMS. Together they are modeling, synthesizing, and testing an energy-efficient membrane to lower the energy costs and improve the efficiency of water treatment. This new “smart,” or selective, membrane is designed to remove only specific contaminants of interest. By carefully designing the membrane’s pore size, surface charge, and applied electrical field, the membrane will remove only specified contaminants.

As we proceed into the 21st century, water management issues will only become thornier. Many players must be considered in this complex water game: the agencies that supply water; individual, industrial, and agricultural water users; and local, state, and federal water quality oversight organiza-

tions. In addition, contamination comes from many sources. Livermore’s Water Initiative projects are involving many of the key players now so that project results can be put to effective use in the future. ■



(a)



(b)

Quantum molecular modeling is helping to design “smart” membranes for water purification. (a) A simulation of a selective membrane pore shows the strong electric field gradients near the pore surface, where blue is the lowest voltage and red is the highest. Electrostatic forces will induce a nitrate molecule to pass through the pore where the molecule can be collected in a waste stream. (b) This model shows the charge distribution of a nitrate ion, where the white area denotes an area of negative charge.

Interview with...

Continued from page 1

ing groups, and interacted with offices of the White House and members of Congress.

The newly established DHS experienced phenomenal growth during that first year. The Science and Technology Directorate, with a budget of about a billion dollars, grew from a dozen staffers when Judy started to about 150 by the time she departed.

In Judy’s 21 years at Livermore, she has consistently focused on applying science and technology to national security programs. Her first 9 years were spent designing and implementing neutron and gamma-ray diagnostics for underground nuclear tests. In 1992, nuclear weapons testing ceased, and Judy took a position as section leader in the Nuclear Chemistry Division. There she began to put her nuclear expertise to work to develop new capabilities in other national security areas: nuclear forensics for nuclear smuggling, attribution of nuclear tests by other countries, radiation detection technologies, and measurements important for verifying and monitoring the Comprehensive Test Ban Treaty. Later, as CMS’s liaison to the Nonproliferation, Arms Control, and International Security Directorate; division leader of the Analytical and Nuclear Chemistry Division; deputy program leader for the Nuclear Counterterrorism Program (R Division);

and program leader for Nuclear and Radiological Detection (P Division), Judy’s contributions to national security and homeland security continued to grow.

She was principal investigator and member of several teams that developed radiation detectors, and she co-founded Livermore’s Radiation Detection Center. In the wake of the 2001 terrorist attacks on the U.S., she worked with experts across Livermore and program leaders in NAI to prepare whitepapers on nuclear and radiological technologies to address homeland security needs. Not long before heading to Washington full time, Judy provided expert consultation on nuclear–radiological counterterrorism technologies to the team developing the nascent DHS.

When asked about her favorite project in her years at the Lab, Judy responded with a broad smile. “That’s an easy one,” she said. “In the late 1980s, the scientific world thought for a while that non-Newtonian gravity might exist. I collaborated on an LDRD project where we measured and predicted gravity at the BREN tower at the Nevada Test Site. But we didn’t observe non-Newtonian gravity, and neither did anyone else.”

One wonders what research might be going on now if they had. ■

November Directorate Review BY JUDY KAMMERAAD



The CMS Directorate Review Committee (DRC) has again given CMS “outstanding” grades for our scientific contributions and program support, continuing the high marks CMS has received for more than two years. Dr. John Poate, who began his new role as chairperson, led the review.

The committee lauded many of the projects for excellence. For example, among the projects reviewed, Nerine Cherapy’s radiation dosimetry project was found to be “first rate,” Christopher Mundy’s new computational approach to the thermodynamic properties of water was considered to be a truly outstanding achievement, and Bryant Hudson’s report on groundwater noble gas analysis rated an “outstanding” response from the committee.

Introductory Session

Wayne Shotts, deputy director for strategic operations, welcomed the committee for Director Mike Anastasio.

Tomás Díaz de la Rubia, CMS associate director, provided an update on CMS, including an overview of key staff changes and awards, a summary of LLNL’s major mission challenges, and a description of how CMS strategic plans and investments map onto those challenges. He explained how this review covers the CMS core competencies in applied nuclear science and computing efforts in Nonproliferation, Arms Control, and International Security (NAI); the Homeland Security Organization (HSO); Energy and Environment; and terascale computing.

CMS Support of NAI and HSO

Stephen Cochran, acting associate director for NAI, presented an overview of NAI missions, highlighting the challenges in nuclear attribution and radiation detection. NAI’s activities in support of homeland security have grown significantly over the past year.

Cesar Pruneda, CMS’s materials program leader for NAI, showed that 57 FTEs, or about 20% of the CMS scientist and engineer workforce, support NAI through the matrix, including at least a dozen individuals who serve in leadership roles. He highlighted the CMS competency in radiochemistry and how it now supports counterterrorism and nonproliferation programs in addition to its ongoing support of stockpile stewardship and environmental programs.

Judy Kammeraad presented the goals of the Radiological and Nuclear Countermeasure program at the Department of Homeland Security (DHS), where the current focus is on improving radiation detection systems for monitoring 307 U.S. ports of entry.

Howard Hall described the DHS Countermeasure Test Bed where detec-

tion technologies are being tested in real environments to assess operational effectiveness and to obtain data needed to quantify how a new technology would improve security. Howard spoke of how LLNL and other laboratories are working closely with the New York and New Jersey port authorities in this effort. This project “shines” as an example of deploying technology in a complex and challenging environment, the committee observed.

Kai Vetter reported on his DHS-funded project to develop a small prototype Compton gamma-ray imager. This emerging technology has the potential of making significant improvements in detecting threatening radioactive objects in the midst of varying radioactive backgrounds.



The current focus on detection systems for interdiction is driven by a congressional mandate for 100% screening of U.S. inland and border ports of entry.

Nerine Cherapy reviewed work in which fluorescent photoluminescent materials were developed for radiation dosimetry. She explained how radiant index spheres that contain these materials make it possible to remotely detect illicit nuclear proliferation activities. This work has gained substantial Defense Advanced Research Projects Agency support.

Sid Niemeyer presented recent advances in U.S. policy and interagency program plans to develop a national capability in radiological and nuclear forensics and attribution. LLNL’s participation in this challenging program has grown significantly in pre- and postdetonation attribution (analysis of nuclear explosion debris), and the committee applauded these efforts. **David Smith** expanded upon Sid’s presentation with a description of how isotopic and chemical signatures can provide important clues to the source of interdicted nuclear materials and their route before interdiction. The need to

understand these signatures opens up a new and exciting field of research with strong programmatic impact.

Jacqueline Kenneally discussed the history of radiochemistry at LLNL and its key role in current and future programs. Developed initially for diagnosing U.S. nuclear weapon tests, this special capability is now extending into new roles in stockpile stewardship and counterterrorism programs, such as nuclear attribution.



The portable RadScout is one of several detectors developed at LLNL.

Jackie, **Carol Velsko**, and **Nathan Wimer** gave further details in a session for Q-cleared reviewers.

The committee termed the radiochemistry group's capabilities as "crown jewels" and invaluable contributors to world security.

Poster Session

Tzu-Fang Wang and **John Luke** presented a poster that described how the radiation detection competency in CMS, originally driven by the needs of radiochemistry to analyze nuclear explosion debris in the underground test program, expanded into new detection technologies for nonproliferation and counterterrorism, using nanoporous materials for large-area gamma detectors and nano-wires for neutron detectors.

Michael Kristo showed how LLNL's nanoSIMS measures isotopic and elemental quantities at very high spatial resolution in samples, allowing research into new signatures of material origin and route to provide a new forensic tool to combat nuclear smuggling.

Wayne Ruhter described DOE's International Radiological Threat Reduction Program. The goal is to help foreign countries secure dangerous radioactive materials, preventing their use in "dirty bombs." The committee commended the project and CMS for the excellent progress in this area.

Daniel Decman highlighted the CMS support of the HEU (Highly Enriched Uranium) Transparency Program, in which the U.S. is purchasing low-enriched uranium formed from HEU from dismantled Russian nuclear weapons.

Dawn Shaughnessy discussed how the extreme chemical environment complicates attribution studies of chemical fractionation in nuclear explosion debris.

Ken Moody and **Philip Wilk** explained new approaches in studying fission and neutron-capture phenomena of nuclear explosion debris to reduce uncertainties in radiochemical analysis.

Bryant Hudson described LLNL's contributions to the Groundwater Ambient Monitoring and Assessment project, funded by the State of California to evaluate groundwater resources. It was noted that this project demonstrates how LLNL's weapons-related capabilities are being applied to analyzing California's ground water.

Timothy Rose presented LLNL's contributions to the Underground Test Area Project, whose goal is a better understanding of the migration of radionuclides left by underground nuclear tests.

Computational Chemistry and Materials

Tomás Díaz de la Rubia set the stage by describing LLNL's current and planned computational capabilities and how CMS scientists are developing a suite of scalable materials science codes to enable breakthrough computational science.

Larry Fried reported on an experimental program that uses computational models to predict methane production deep in the earth (100–300 km) and heated diamond anvil



Screening at U.S. borders relies on technology developed by CMS to detect radiological sources.

cell measurements that showed the formation of methane. A separate study is underway to elucidate the interior of Uranus using the Thunder computer and high-pressure experiments. The committee approved of Larry's collaboration with other scientific leaders and the publication of his work in a national journal.

Describing a cutting-edge effort that will also affect other CMS programs, **Christopher Mundy** presented his first-principles approach to predict the thermodynamic properties of water. By using the Thunder computer, he proposed to resolve important experimental and theoretical issues about water, including questions about the phase diagram.

Farid Abraham described using Thunder simulations to develop novel techniques for folding proteins. He plans to move this highly visible and competitive research to the BlueGene/L computer. Success in this effort will set the standard in this field.

Alison Kubota highlighted simulations of hydrodynamic instabilities and mixing in an atomic liquid. This study may be of interest to the Inertial Confinement Fusion program and other Laboratory programs investigating hydrodynamic phenomena.

Tom Arsenlis presented the novel approaches incorporated in the ParaDiS code, which simulates dislocation dynamics in crystalline materials. By running ParaDiS on Thunder and eventually on BlueGene/L, Tom expects to address key scientific and programmatic challenges associated with plastic strength under high strain rates.

Water Initiative

The review committee noted that the presentations demonstrated the "outstanding job" the Water Initiative teams are doing in using the Lab's expertise in strategic ways.

Robin Newmark, program leader for Water and Environment, gave a detailed overview of the LLNL Water Initiative and showed how California's dependence on subsurface water requires better groundwater management capabilities. This initiative is developing tools to understand nitrate biogeochemistry and reactive transport, plus tools to selectively remove contaminants from water.

Brad Esser explained the nitrate biogeochemistry project in which microbial denitrification field test results are being used in basin-scale flowpath models to benefit California's groundwater efforts.

Bill Wilson presented his project for using nanoporous membranes in capillary electrophoresis to remove nitrates from contaminated water. ■

Awards and Personnel News

CMS Employees Honored by Other Directorates

The Director's Office recognized **Debora Hackel**, **Roseanne Kamerdula**, **Michaela Salas**, and **Cherie Napier** as part of Group Tier 1 for Classified Administrative Specialists' extraordinary contributions during the CREM inventory.

BBRP honored the following CMS employees:

- **Ramakrishna Madabishi** for being part of the team that developed the R&D 100 Award-winning Autonomous Pathogen Detection System.
- **David Fergensen** for educational outreach. He and **Maurice Pitesky** of BBRP held a microbiology "boot camp" at Diablo Valley College.
- **Sonia Letant**, **Tony Van Buuren**, **Lou Terminello**, **Louisa Hope-Weeks**, and **Bradley Hart** for their work on a patent for "chemical and biological detection with a functionalized aperture."

E&E granted awards to the following CMS employees:

- **Raul Rebak** for work on the Yucca Mountain project and editorial contributions to the "Corrosion" volume of the *ASM Handbook* series.
- **Frank Wong**, **Tiangan Lian**, and **Mark Sutton** for exemplary contributions in preparing all written documentation and data accumulation for the Yucca Mountain license application.
- **Chris Orme** and **Joel Hayes** for exemplary contributions in completing Appendix N for the Yucca Mountain Key Technical Issue documentation.
- **Sharon Torres** and **Bassem El-Dasher** for exemplary contributions in completing Appendix Q for the Yucca Mountain Key Technical Issue documentation.

The following CMS employees were honored by NAI:

- **Paul Coronado**, **Kenneth Foster**, **Bradley Hart**, **Sonia Letant**, **John Reynolds**, **Sharon Shields**, and **Thomas Tillotson** for cutting-edge research in nanomaterials that led to significant recognition for Lawrence Livermore.
- **Robert Schmidt** for supporting the International Atomic Energy Agency in prewar inspections in Iraq during a period of enormous pressure and tension (and then getting out in time).

PAT honored several CMS employees:

- **Herb Tobias** and **David Fergensen** as part of a team that went on several field tests with the BAMS system in Cincinnati, Ohio. The team demonstrated that BAMS can detect and quantify *Mycobacteria* in very low concentrations.
- **Zurong Dai** for being part of a team that coauthored "Carbon and Nitrogen Isotopic Anomalies in an Anhydrous Interplanetary Dust Particle," which was published in *Science*. ■

Three New Fellows of the American Physical Society

Craig Tarver, a scientist in CChED's extreme chemistry capability area; **Lou Terminello**, materials program leader for Defense and Nuclear Technologies; and **David Eaglesham**, former deputy associate director for Science and Technology, are now Fellows of the American Physical Society. Tarver was honored for "his contributions to shockwave physics and in particular his development and implementation of the Ignition and Growth model for reactions in energetic materials and the non-Equilibrium ZND theory for detonating energetic materials." Terminello was recognized for "his innovative use of synchrotron radiation spectroscopy in revealing the electronic and atomic structure of new materials." Eaglesham was awarded for "his seminal discoveries and technical leadership in semi-conductor crystal growth and structural defects in epitaxial materials." Congratulations to all! ■



Craig Tarver



Lou Terminello

Best Paper Award

Bill Pitz and **Charlie Westbrook** are winners of the Society of Automotive Engineers' 2003 Arch T. Colwell Merit Award for the best paper presented at society meetings. Their paper, "Effects of Oxygenates on Soot Processes in DI Diesel Engines: Experiments and Numerical Simulations," was written with four co-authors from Sandia National Laboratories. Their work was deemed the best among 2,492 papers published for meetings of the Society of Automotive Engineers during 2003. Way to go! ■

Fellowship for Former CMS Postdoc

Former postdoc **Wei Cai**, now an assistant professor of mechanical engineering at Stanford University, was recently named a 2004-05 Frederick E. Terman Fellow. Cai was one of 13 faculty members to receive the fellowship, which includes an award ranging from \$50,000 to \$100,000 for up to three years. The Terman fellowship program was established in 1994 with a gift from William R. Hewlett and David Packard. ■

Discovery of Element 115, a Top Physics Story

The American Institute of Physics recently announced its top physics stories for 2004. Just one Livermore project made the AIP hit parade: the discovery of element 115 at the Joint Institute for Nuclear Research in Dubna, Russia. Congratulations to **Jackie Keneally**, **Ken Moody**, **Mark Stoyer**, **Josh Patin**, **Ron Loughheed**, **Dawn Shaughnessy**, **John Wild**, and **Nancy Stoyer** of CMS and Yuri Oganessian and his team in Russia for their contributions to this groundbreaking work. ■

CMS Directorate Awards

Excellence in Publications Awards recognize scientific publications that have had widespread impact on and made contributions to CMS's own publications. These awards went to the following individuals from CMS and other directorates:

- **Anthony Esposito, Chad Talley, Christopher Hollars, Thomas Huser, James Chan, Steve Lane**, "Reagentless Identification of Single Bacterial Spores in Aqueous Solution by Confocal Laser Tweezers Raman Spectroscopy, *Biophotonics International*, April 2004.
- **Laurence Fried, Mike Howard, Sorin Bastea**, "Generation of Methane in the Earth's Mantle: In Situ High P-T Measurements of Carbonate Reduction," *Proceedings of the National Academy of Sciences*, September 2004.
- **Zurong Dai, Sasa Bajt, Giles Graham, John Bradley**, "Carbon and Nitrogen Isotopic Anomalies in an Anhydrous Interplanetary Dust Particle," *Science*, 2004.
- **Roger Qiu, Christine Orme, James De Yoreo**, "Molecular Modulation of Calcium Oxalate Crystallization by Osteopontin and Citrate," *Proceedings of the National Academy of Sciences*, February 2004.
- **Sonia Letant, Bradley Hart, Sharon Shields, John G. Reynolds, Masood Hadi, Staci Kane**, "Enzyme Immobilization on Porous Silicon Surfaces," *Advanced Materials*, April 2004.
- **Alex Ballard, Scott Dougherty, Marleen Emig, Michael Fluss, Galen Hazelhofer, Theresa Healy, George Kitrinis, Karen Rath, Gabriele Rennie, Stephanie Shang, Katie Walter, and Charles Westbrook** in recognition of outstanding contributions to CMS scientific and technical publications in 2004.

Distinguished Service Awards were given to

- **Julie Herberg** in recognition of receiving the Best Poster Award for "Lithography Patterned Microcoils for High-Sensitivity NMR" at the 2004 MRS national meeting.



- **Riad Manaa** for founding a new session, "Simulations of Matter at Extreme Conditions," at the 2004 American Physical Society national meeting.
- **Roz Swansiger** for creating a safe work environment for handling explosives.
- **Katie Thomas** in recognition of contributions to the BSNL/CBBB September 2004 Media Event.
- **Sheri Miner, Daphne Dugan, Dawn Areson, Debora Hackel, Roseanne Kamerdula, Michaela Salas, Cherie Napier, Hugh Gregg, Bryan Bandong, Tammy Gdowski, and Joseph Carlson** for successful execution of the DOE Classified Removable Media (CREM) 2004 audit. ■

Welcome to the Directorate



Front row from left: Lollie Christner, Patty Brooks, Christina Ramon, Lana Wong; Back row from left: Naida Lacevic, Christopher Pierce, Jake Koerner, Stewart Fallon, Michael Stadermann. Not shown: Sung-Wook Chung

Please send items for the next newsletter (e.g., directorate news, awards, conference calendar items) to **Allan Francke** (francke1@llnl.gov).

Postdoc People News

A big hello to **Naida Lacevic** and **Richard Kimura**.

These former postdocs are now flex-term employees: **Brady Clapsaddle, Jonathan Crowhurst, Lucile Dauffy, David Fergenson, Julie Herberg, Erik Nelson, Lucian Mihailescu, Joshua Patin, Roger Qiu, Bryan Reed, Thomas Trelenberg, Herbert Tobias, and Luis Zepeda-Ruiz**.

And we bid adieu to **Bahrad Sokhansanj, Barry Cheung, and Taira Okita**.

A Fond Farewell to...

- **Deborah Irish**, who has transferred to Engineering; **Steven Kreek**, now in NAI; and **Christopher Krenn**, now in DNT.
- **Chin Li Cheung, David Eaglesham, Richard Howell, Jesse Meadows, and Josie Morgado**, who have left the Laboratory.
- **Larry Newkirk**, who has retired, lucky fellow!

Message from the Associate Director

Continued from page 1

young staff. This past year, two of our young scientists received the prestigious Presidential Early Career Award for Scientists and Engineers (PECASE). Christine Orme and Brian Wirth (now a U.C. Berkeley faculty member) were recognized in a White House ceremony for groundbreaking accomplishments early in their careers and for their potential for future leadership. They continue to help train and recruit the best and brightest for the Laboratory.

Professional Society Honors

This year, out of the five fellows selected by the American Physical Society at the Lab, three are associated with CMS. **David Eaglesham** (who recently left for Applied Materials), **Craig Tarver**, and **Lou Terminello** join the ranks of renowned scientific leaders who are recognized for their significant contribu-

tions to science. Details of their citations are covered elsewhere in this issue.

Many of our staff members are also honored by their professional societies with leadership positions. For example, **Charlie Westbrook** served as vice president (president elect) for the Combustion Institute. **Patrice Turchi** was elected 2005 Division Chair of the Electronic, Magnetic and Photonic Materials Division of TMS. **Bryan Balazs** was elected as chair of Education Subcommittee A of the American Chemical Society. Together, they represent the Laboratory at its best.

Excellence in Publications

Over this past year, CMS scientists have continued to publish outstanding science, around 300 articles, in many of the world's most prestigious journals—*Science*, *Materials Research Bulletin*,

Physical Reviews Letters, and *Analytical Chemistry*, to name a few. A number of these articles graced the covers of several journals. Many accomplishments, such as the discovery of elements 113 and 115, enjoyed media spotlights and newspaper headlines in 2004.

We also vigorously tailor our general-purpose publications—such as our brochures or annual reports—to reach out to decision makers and potential applicants. The outstanding quality of the 2003 Annual Report and the new recruitment brochure recently won national awards for excellence in technical communications.

My wholehearted congratulations go to the recipients of these many prestigious awards. I invite everyone in the directorate to follow their examples as we continue to strive for scientific excellence. We have a world-class organization, and we are proud to make sure the world knows it. ■

Conference Calendar

DATE	CONFERENCE	LOCATION	WEB SITE
March 13–17	American Chemical Society National Meeting	San Diego, CA	www.chemistry.org/
March 21–25	American Physical Society March Meeting	Los Angeles, CA	www.aps.org/meet/MAR05/
March 28–April 1	Materials Research Society Spring Meeting	San Francisco, CA	www.mrs.org/meetings/spring2005/
April 26–28	Compatibility, Aging, and Stockpile Stewardship Conference	Aiken, SC	www.pantex.com/acssc
April 27–28	Working Together: R&D Partnerships in Homeland Security	Boston, MA	www.homelandsecurityresearchconference.org/

American Chemical Society National Meeting

Larry Fried will chair a session, and talks will be given by **Rick Gee**, **Chris Mundy**, **Robert Maxwell**, **Timothy Ratto**, **Jeffrey Tok**, and by **Tony Van Buuren** via **Pat Allen**. The ACS Division of Nuclear Chemistry and Technology (NUCL) features a Transport Behavior of Actinides and Fission Products in the Subsurface symposium, organized and co-hosted by **Annie Kersting**.

Compatibility, Aging, and Stockpile Stewardship Conference

Andrew Saab is the LLNL representative to whom you may submit papers (March 17 deadline) for this conference to be held at the Savannah River National Laboratory.

A PDF of this newsletter with clickable Web links can be downloaded from the CMS Web site <http://www-cms.llnl.gov/news/newsletter.html>.